

What is claimed is:

1. A method for improving a sound quality of an MFD comprising:
amplifying an audio signal received from a base station;
removing an oscillation frequency component from the amplified audio
5 signal; and

switching the amplified audio signal and the amplified audio signal with the
oscillation frequency component removed to an MFD according to an operation
mode of a terminal.

10 2. The method of claim 1, wherein the audio signal is one of a voice
signal, a ring signal and an oscillation frequency signal.

3. The method of claim 1, wherein the amplified audio signal with the
frequency component removed is a voice signal or a ring signal.

15 4. A method for improving a sound quality of an MFD comprising:
dividing an audio signal into first and second paths according to a path
control signal;

amplifying the signal on the second path;
filtering the signal on the first path and the amplified signal on the second
path; and
selectively outputting the filtered signal and the amplified signal on the
second path to an MFD according to a vibration enable signal.

25 5. The method of claim 4, wherein the audio signal is one of a voice

signal, a ring signal and an oscillation frequency signal, and the filtered signal of the second path is a ring signal.

6. The method of claim 4, wherein the signal on the first path is a
5 voice signal and the signal on the second path is one of a ring signal and an oscillation frequency signal.

7. The method of claim 4, wherein the audio signal is outputted to
the first path in a call mode and outputted to the second path in a ring mode and a
10 vibration mode.

8. The method of claim 4, wherein the filtered signal is outputted to
the MFD in the call mode and in the ring mode, while the amplified signal is
outputted as it is to the MFD in the vibration mode.

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9. The method of claim 4, wherein the path control signal has a low
level in the call mode and a high level in the ring mode and in the vibration mode,
while the vibration enable signal has a low level in the call mode and the ring
mode and a high level in the vibration mode.

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10. An apparatus for improving a sound quality of an MFD comprising:
an audio amplifier for amplifying an audio signal received from a base
station;
a filtering unit for filtering an output signal of the audio amplifier; and
25 a switching unit for selectively outputting an output signal of the filtering

unit and the audio amplifier according to a vibration enable signal.

11. The apparatus of claim 10, wherein the vibration enable signal is outputted from an processing unit (Mobile Station Modem) corresponding to an 5 operation of a terminal, and has a low level in a call mode and in a ring mode and a high level in a vibration mode.

12. An apparatus for improving a sound quality of an MFD comprising:
a first switching unit for selectively switching an audio signal received from
10 a base station to first or to second path according to a path control signal;
an audio amplifier for amplifying the audio signal of the second path;
a filtering unit for filtering the audio signal of the first path and the output
signal of the audio amplifier; and
a second switching unit for selectively switching an output signal of the
15 filtering unit and the audio amplifier to an MFD according to a vibration enable
signal.

13. The apparatus of claim 12, wherein the first and second switching
units comprise of two analog audio switches, respectively, and the filtering unit
20 comprises of two high pass filters.

14. The apparatus of claim 12, wherein the path control signal and the
vibration enable signal are outputted from a processing unit (Mobile Station
Modem) corresponding to an operation mode of the terminal.

25 15. The apparatus of claim 14, wherein the path control signal has a

low level in the call mode and a high level in the ring mode and in the vibration mode, while the vibration enable signal has a low level in the call mode and the ring mode and a high level in the vibration mode.

5 16. The apparatus of claim 12, wherein the audio signal is one of a voice signal, a ring signal and an oscillation frequency signal.

10 17. The apparatus of claim 12, wherein the signal of the first path is a voice signal, while the signal of the second path is one of a ring signal and an oscillation frequency signal.

18. The apparatus of claim 12, wherein the filtered output signal of the audio amplifier is a ring signal.

15 19. The apparatus of claim 12, wherein the first switching unit outputs an audio signal to the first path in a call mode and outputs it to the second path in a ring mode and in a vibration mode.

20 20. The apparatus of claim 12, wherein the second switching unit outputs an output signal of the filtering unit to the MFD in the call mode and in the ring mode, and outputs an output signal of the audio amplifier to the MFD in the vibration mode.

21. A method of processing a communication signal, the method comprising:

determining if a received signal is at least one of a voice signal and an alert signal;

5 filtering the received signal to produce a first voice signal, if the received signal is a voice signal;

amplifying the received signal to generate a first amplified alert signal, if the received signal is an alert signal;

determining if a vibration status is set;

10 filtering the first amplified alert signal to generate a ring signal, if the vibration status is not set;

producing a vibration signal, if the vibration status is set; and

producing at least one of the voice signal, the ring signal, and the vibration signal as output.

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22. The method of claim 21 further comprising providing the output signal to a multi function device (MFD).

23. The method of claim 22 further comprising:

20 causing the MFD to vibrate, if the output signal comprises the vibration signal;

causing the MFD to ring, if the output signal comprises a ring signal; and

causing the MFD to produce voice output, if the output signal comprises a voice signal.

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24. The method of claim 21, wherein filtering the voice signal and filtering the first amplified alert signal removes an oscillation frequency component from the first amplified alert signal.

5 25. A method of improving sound quality comprising:
amplifying the received signal to generate an amplified signal;
filtering the amplified signal to generate a filtered signal, if a vibration status is not set; and
producing a vibration signal, if the vibration status is set and the amplified
10 signal does not contain voice components.

26. The method of claim 25, wherein the step of filtering the amplified signal further comprises:

15 producing a voice signal, if the amplified signal comprises voice components.

27. The method of claim 25, wherein the step of filtering the amplified signal further comprises:

producing a ring signal, if the amplified signal comprises ring components.

20 28. An apparatus for processing signals received by a mobile communication terminal comprising:
means for determining if a received signal is a voice signal or an alert signal;

25 means for filtering the received signal to produce a first voice signal, if the

received signal is a voice signal;

means for amplifying the received signal to generate a first amplified alert signal, if the received signal is an alert signal;

means for determining if a vibration status is set;

5 means for filtering the first amplified alert signal to generate a ring signal, if the vibration status is not set;

means for producing a vibration signal, if the vibration status is set; and

means for producing at least one of the voice signal, the ring signal, and the vibration signal as output.

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29. An apparatus for processing a communication signal comprising:

a switch for switching a received signal to at least one of a voice signal and an alert signal;

an amplifier for amplifying the received signal to generate a first amplified

15 alert signal, if the received signal is an alert signal;

a signal generating unit for generating a vibration enable signal;

a filter for filtering the received signal to produce a first voice signal, if the received signal is a voice signal, and for filtering the first amplified alert signal to generate a ring signal;

20 a switch for generating a vibration signal, if the vibration enable signal is set.

30. The apparatus of claim 29 further comprising a multi function device (MFD), wherein the MFD vibrates if the vibration signal is generated.

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31. The apparatus of claim 29 further comprising a multi function device (MFD), wherein the MFD rings if the ring signal is generated.

32. The apparatus of claim 29 further comprising a multi function device (MFD), wherein the MFD produces voice if a voice signal is generated.

33. The apparatus of claim 29 further comprising a multi function device (MFD) utilized in a mobile communication terminal, wherein the MFD receives at least one of the vibration, ring, or voice signals.

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34. A mobile terminal having an MFD, the mobile terminal comprising:
a signal processor that outputs an analog signal and a control signal;
a filter module in communication with the signal processor to output a
filtered signal and an unfiltered signal; and
15 a switch in communication with the filter module and responsive to the control signal to output the filtered signal to the MFD when the control signal is at a first level, and to output the unfiltered signal when the control signal is at a second level.